

Figure 1. Enzymatic activity assay for a matrix containing  $\beta$ -Glucosidase.

Penicillinase assay

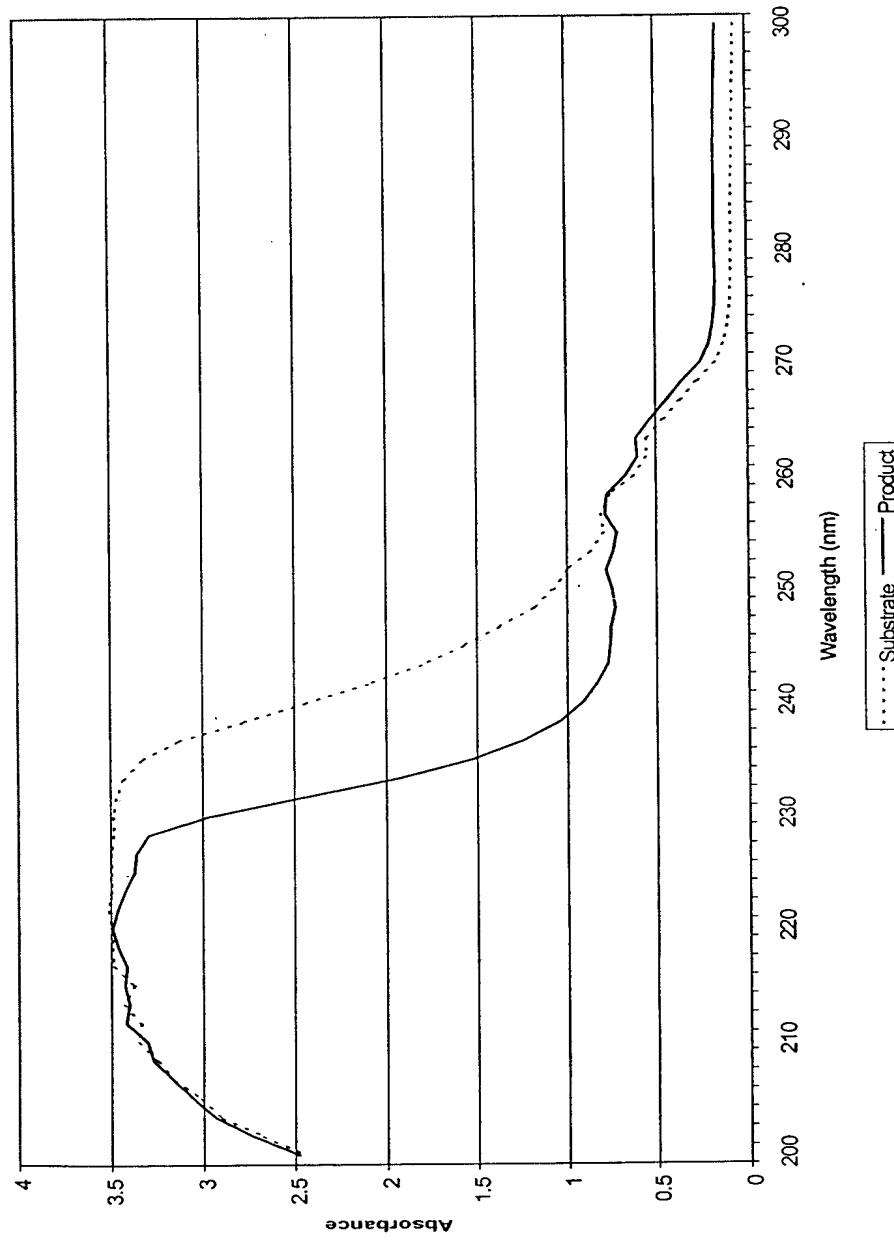


Figure 2. Substrate and product spectra for penicillinase assay.

Penicillinase Matrix

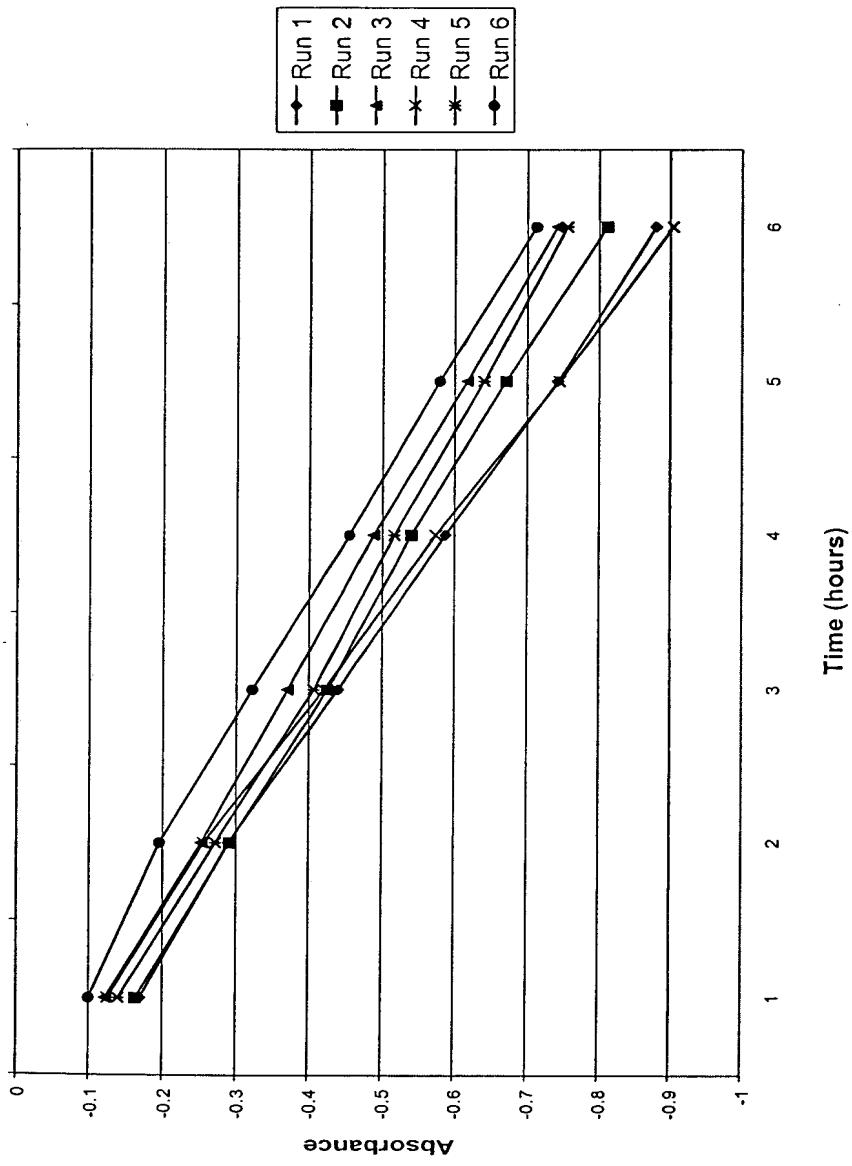


Figure 3(a). Penicillinase activity assays showing (a) multiple assays of a single matrix and (b) a single assay performed on each of five matrices from one batch preparation.

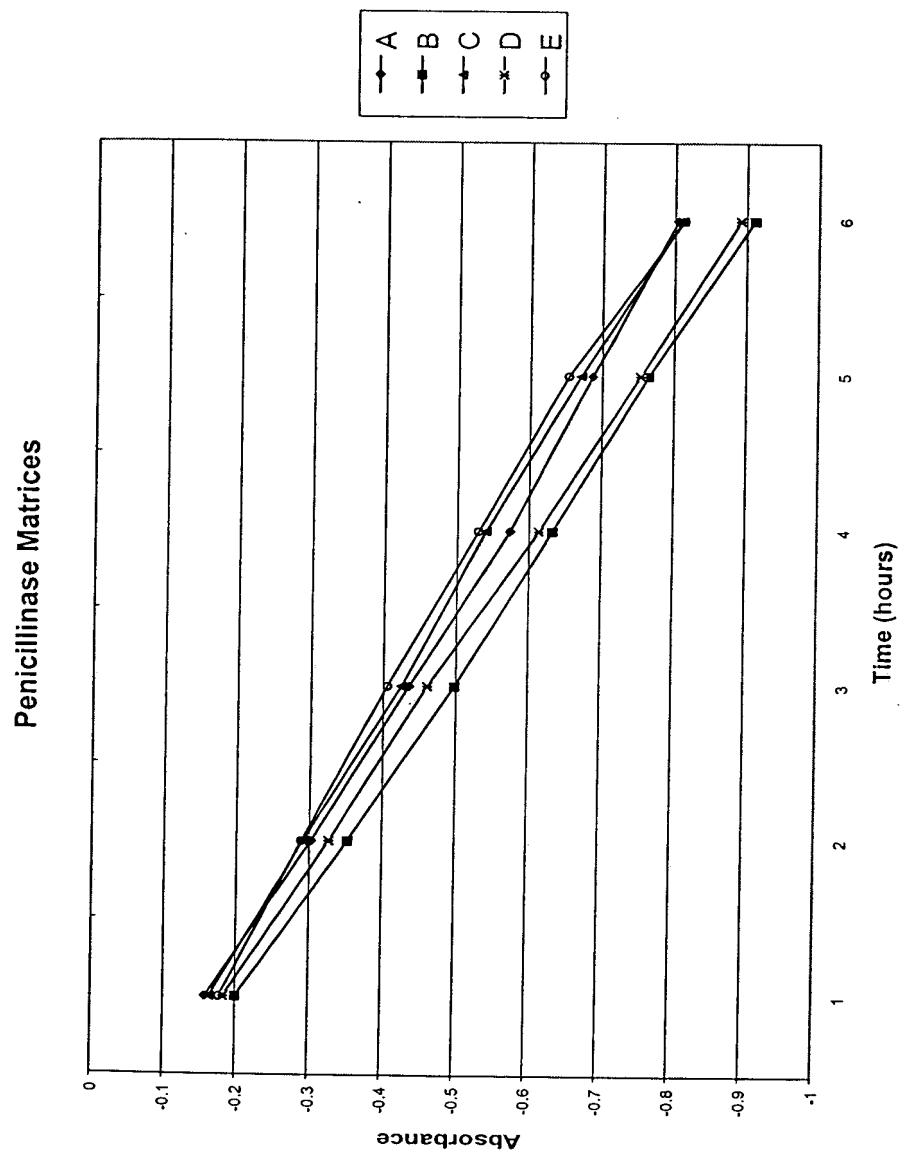


Figure 3(b). See the legend directly above.

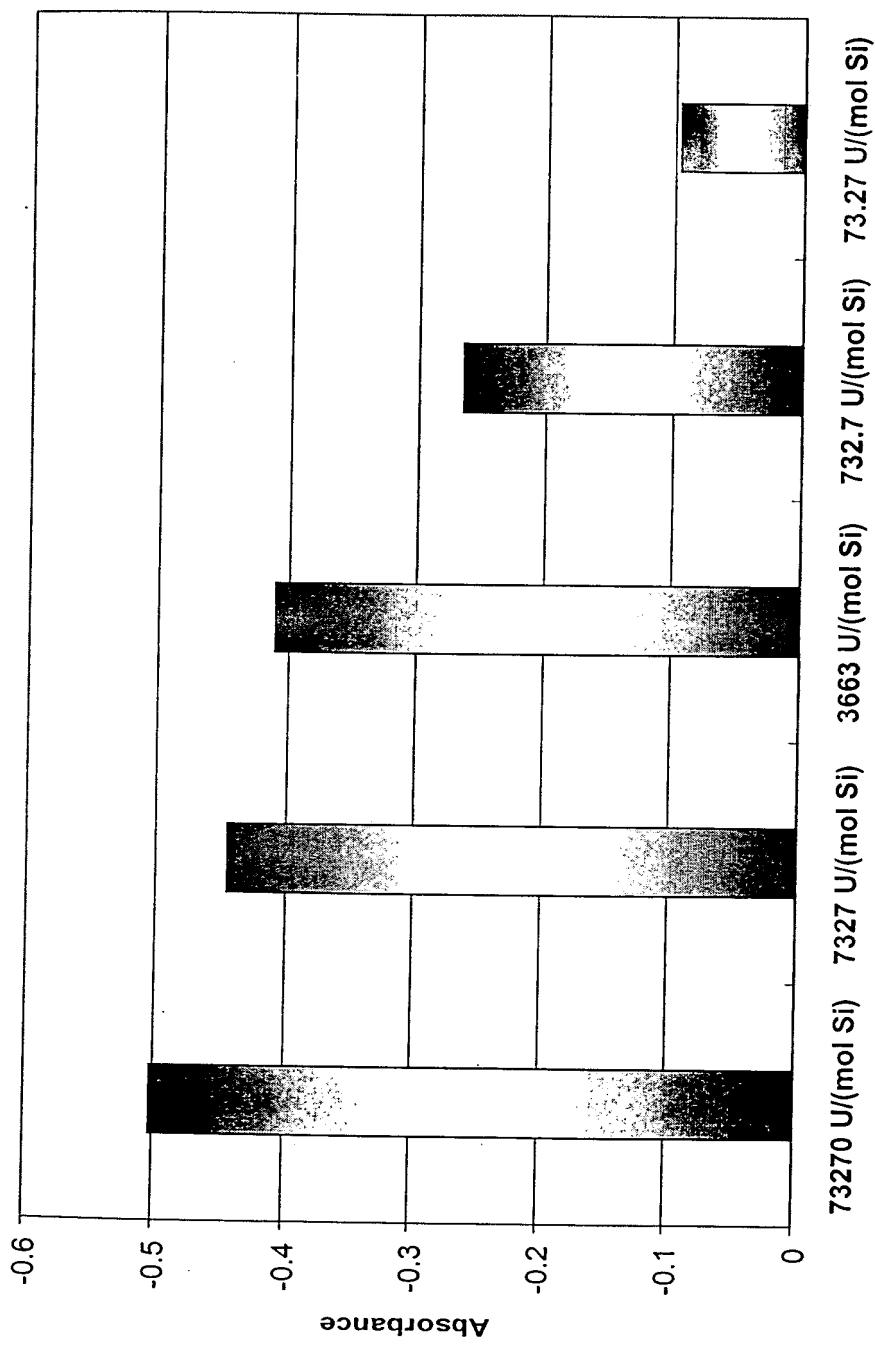
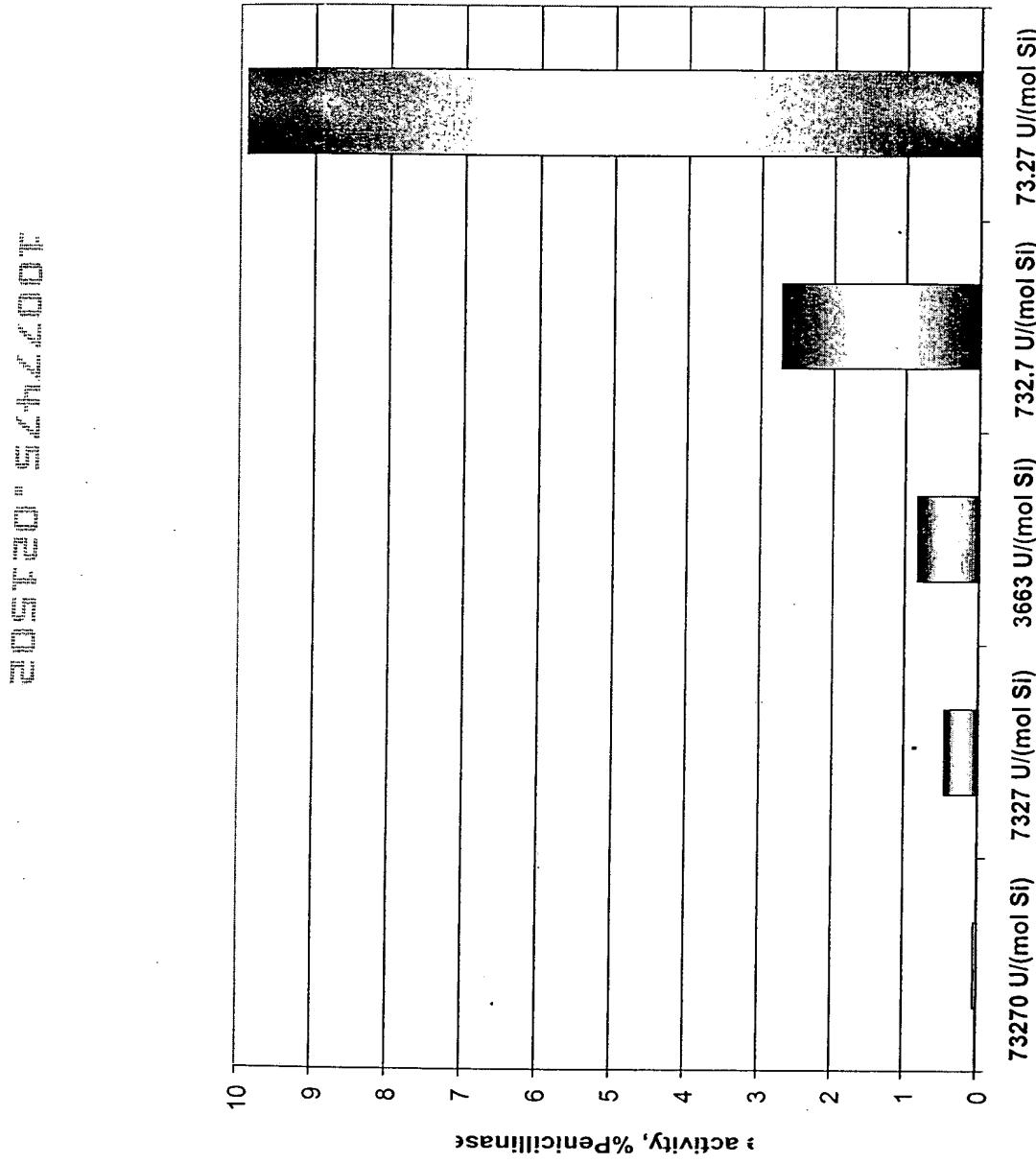


Figure 4. Change in absorbance at three hours as a function of the enzyme concentration added to the matrix during preparation.



**Figure 5.** Yield of immobilized enzyme in penicillinase-containing sol-gel matrices. (Observed activity was calculated as the percentage of enzyme activity used in the preparation of the matrices).

Penicillinase Matrices  
(monoliths)

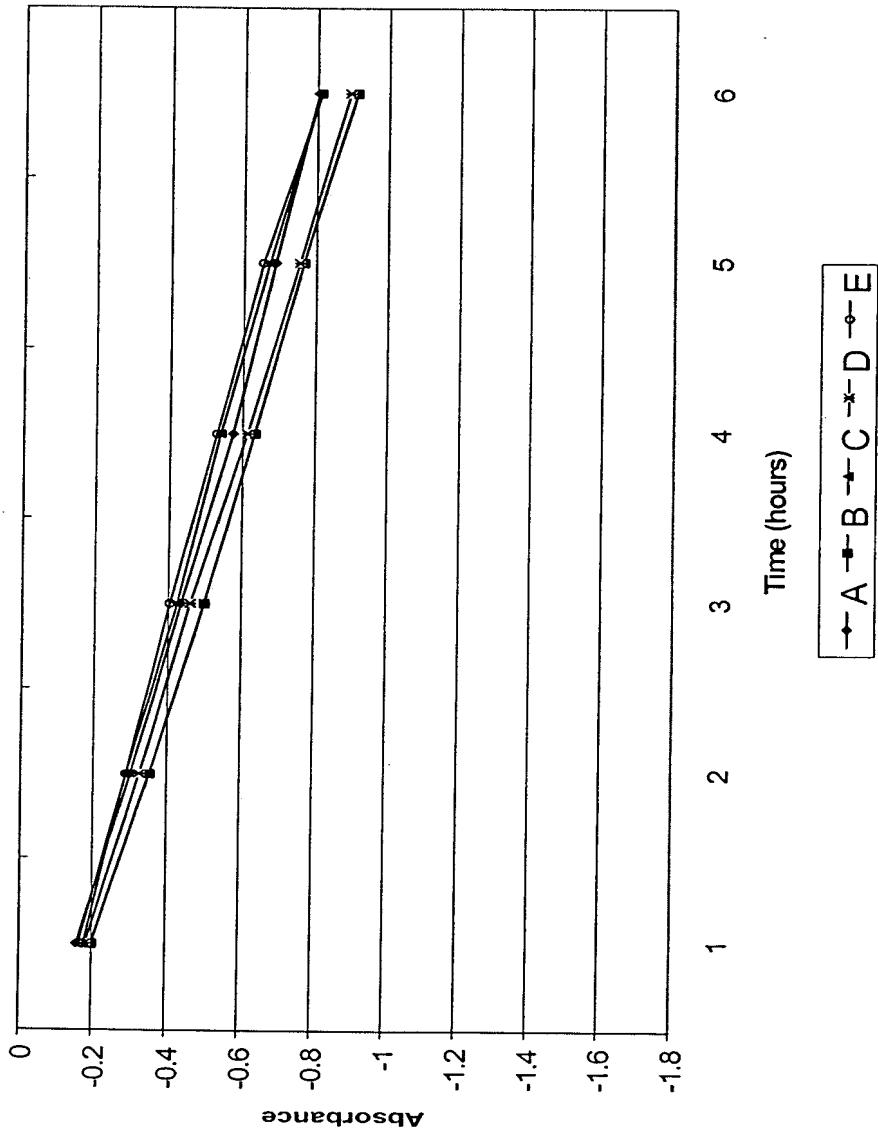


Figure 6(a). Activity of crushed and whole matrices containing penicillinase. Each figure shows data for five unique matrices assayed one time each.

Penicillinase Matrices  
(crushed monoliths)

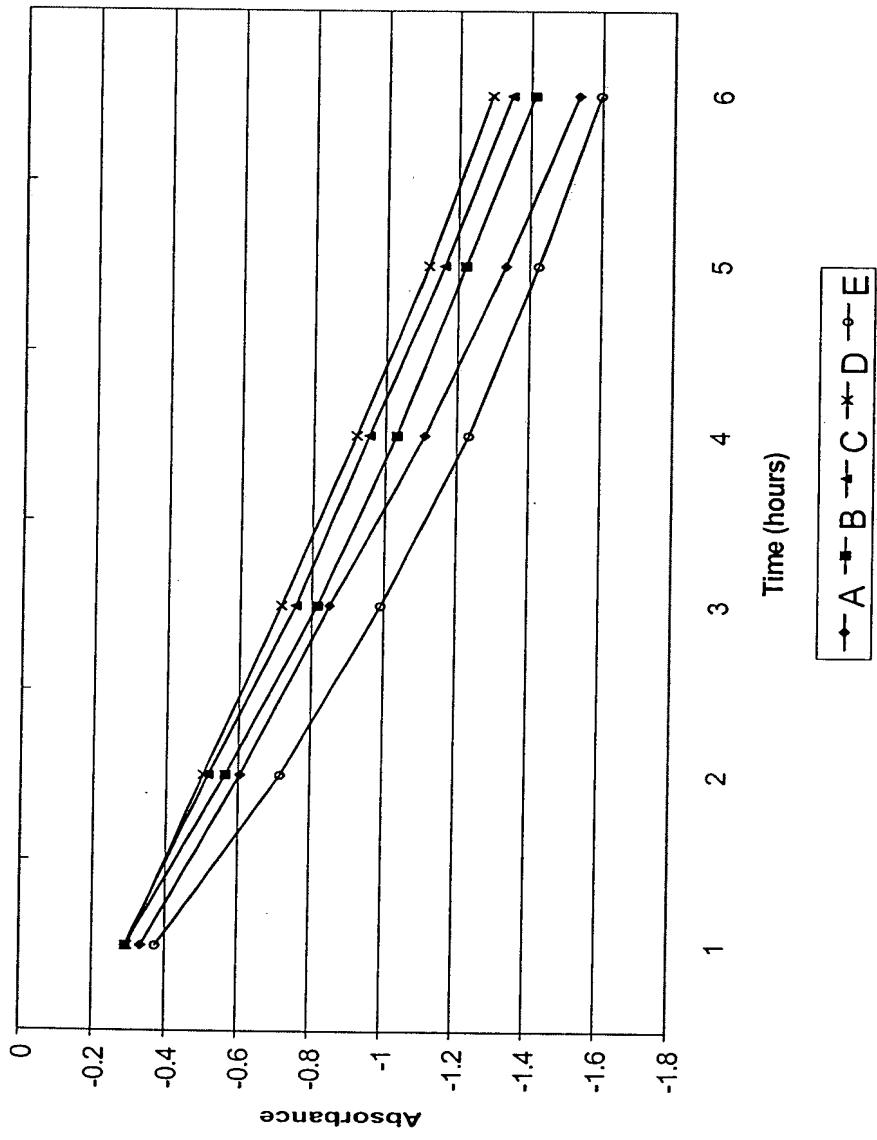


Figure 6(b). See legend directly above.

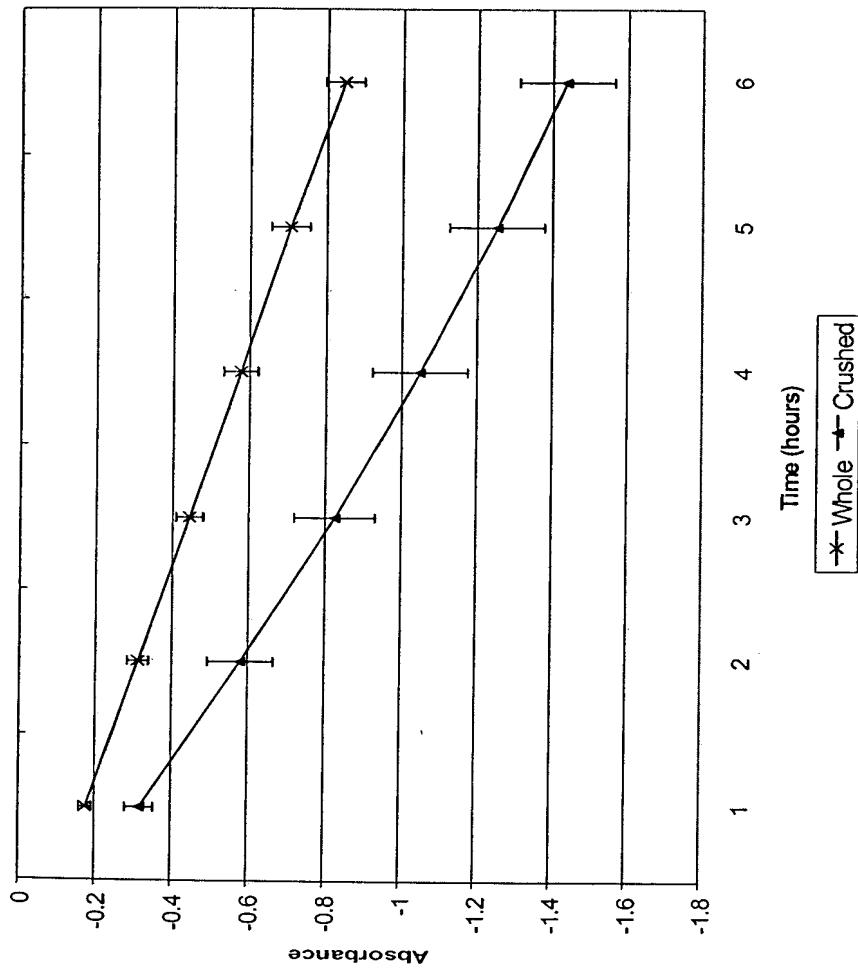
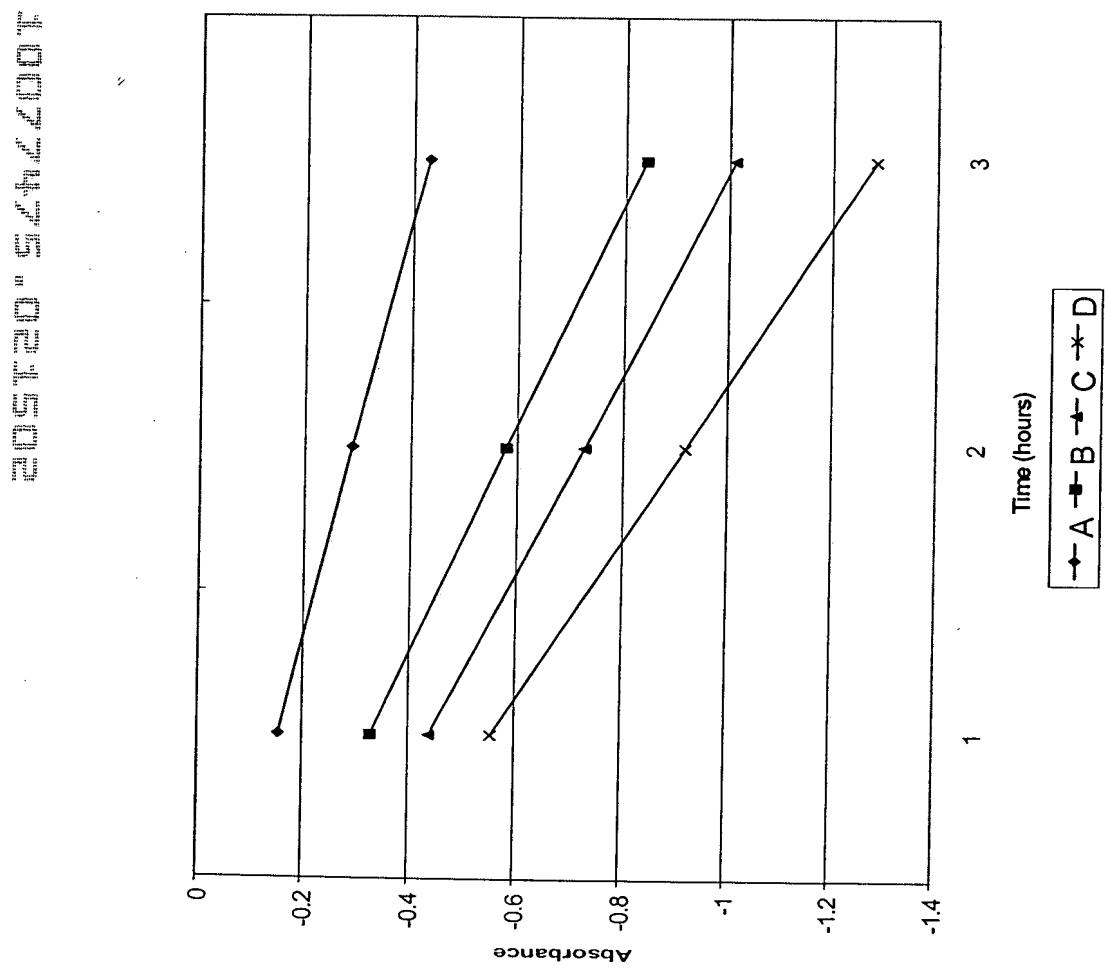


Figure 7.1 Penicillinase activity in whole monoliths and crushed matrices with points shown being the mean of five measurements (error bars +/- one standard deviation).



**Figure 8(a).** (a) Activity of penicillinase-containing matrices with varying surface areas and (b) activity as a percentage of the activity added in preparation. Surface areas corresponding to the labeling in the graphs are:  $A = 15.1 \text{ cm}^2$ ,  $B = 39.2 \text{ cm}^2$ ,  $C = 71.3 \text{ cm}^2$  and  $D = 135 \text{ cm}^2$ .

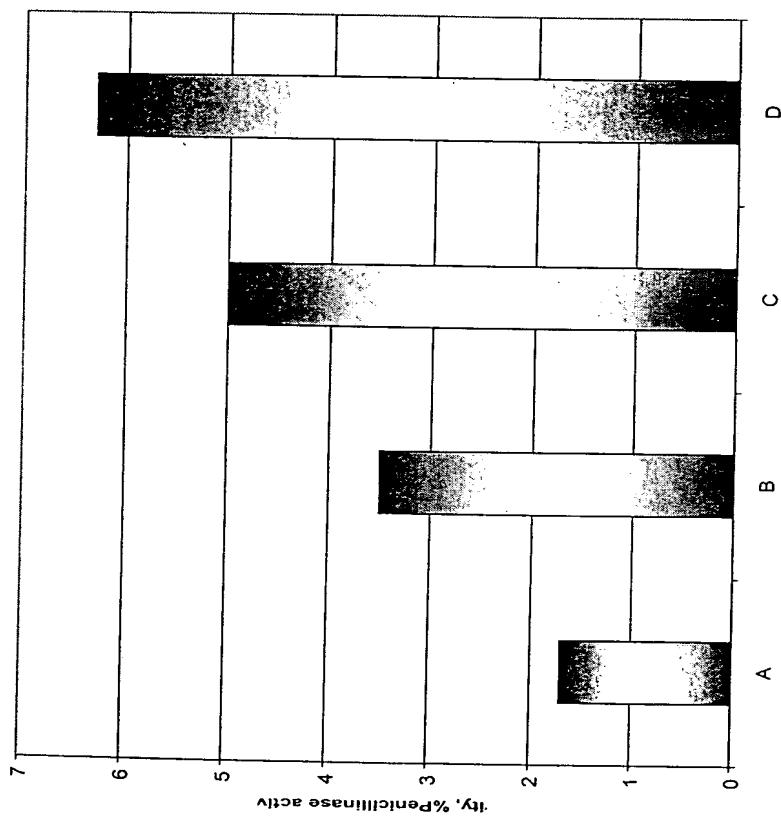


Figure 8(b). See legend directly above.

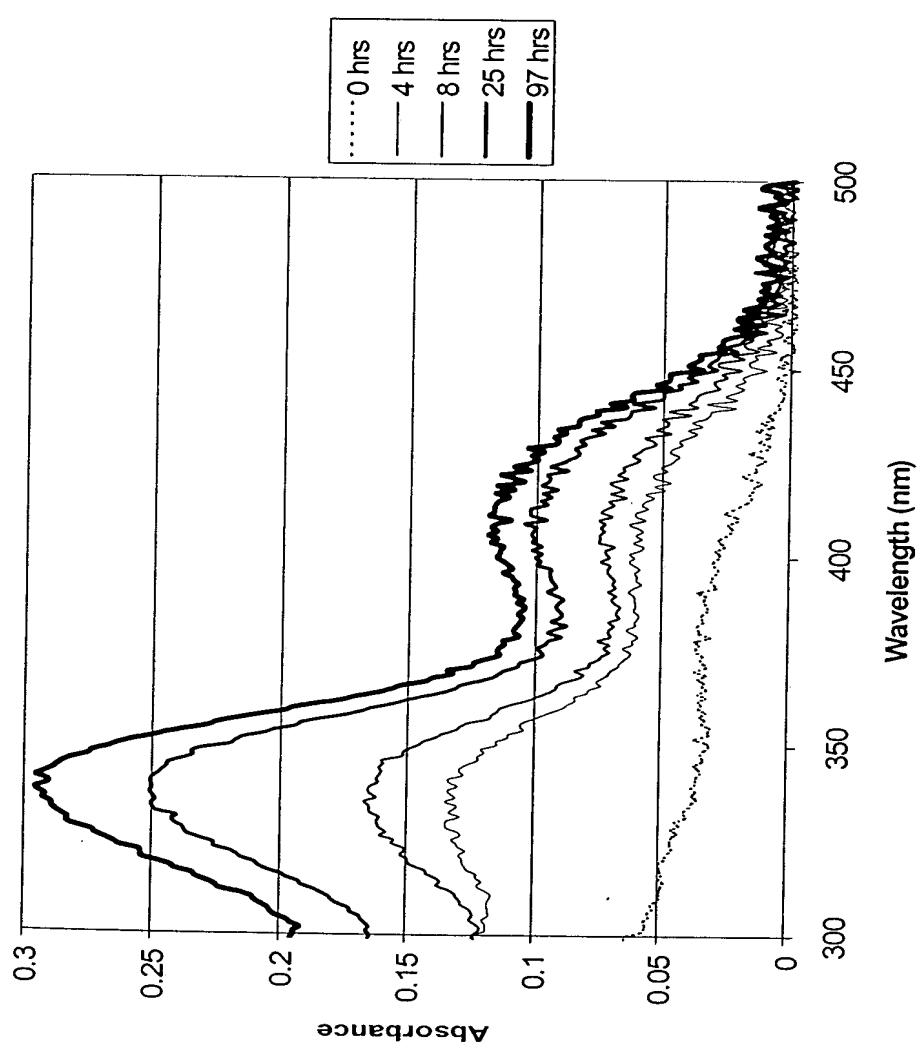
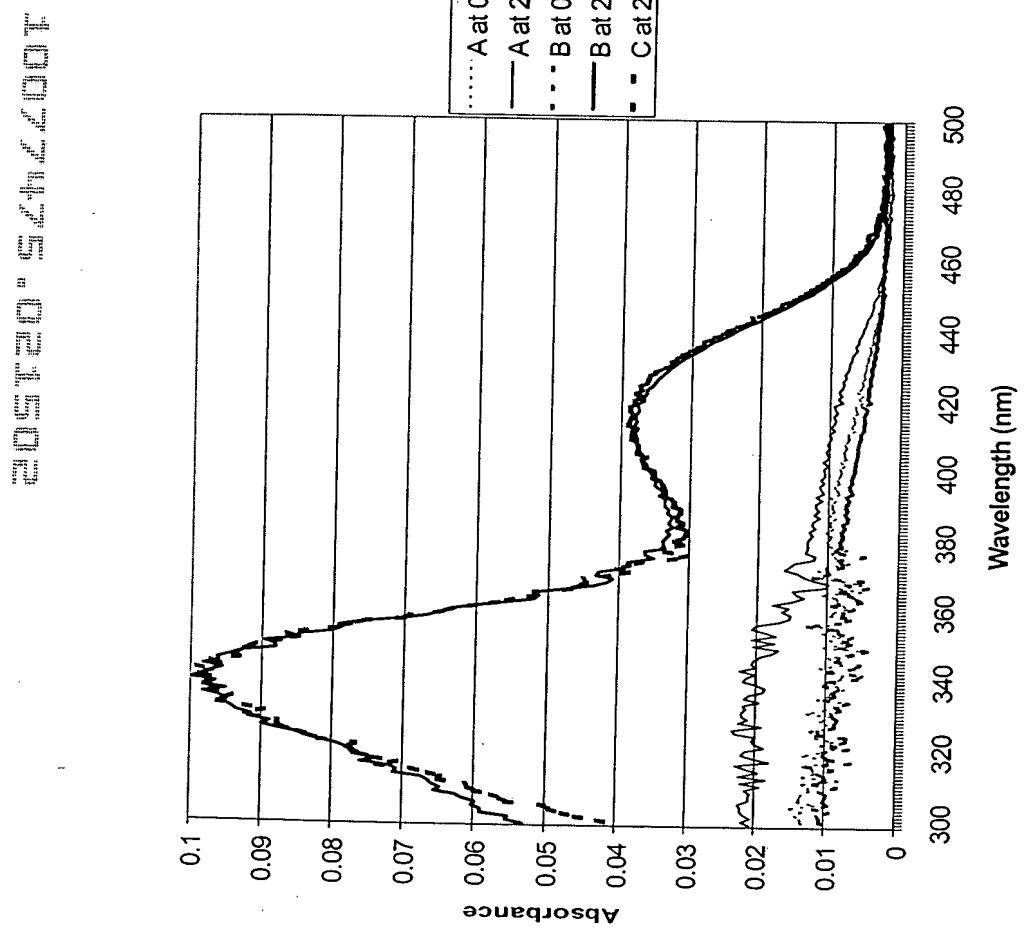


Figure 9. Tyrosine decarboxylase activity assay; elapsed time since gel cast 19.5h.



**Figure 10**, Tyrosine decarboxylase activity assay of two identical 16 day old matrices, A and B, with comparison to C (same matrix composition aged 19h, no cofactor present). Assay of A is performed in the absence of pyridoxal-5-phosphate (cofactor) while B is performed with cofactor present.